

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-16 are pending in the present application. Claims 1, 2, 5-7, 10, 11 and 14-16 are amended by the present response. Claims 17-20 are withdrawn. Support for amendments to the claims can be found in the claims as originally filed. Thus, no new matter is added.

In the outstanding Office Action, Claims 1-4, 9, 12 and 15 were rejected under 35 U.S.C. §102(b) as anticipated by Matsuda et al. (U.S. Pat. No. 6,494,220, herein “Matsuda”); Claim 5 was rejected under 35 U.S.C. §103(a) as unpatentable over Matsuda in view of Kitano et al. (U.S. Pat. No. 6,537,373, “Kitano”); Claims 6 and 8 were rejected under 35 U.S.C. §103(a) as unpatentable over Matsuda in view of Ruhl et al. (U.S. Pat. Pub. No. 2005/0016468, herein “Ruhl”); Claim 7 was rejected under 35 U.S.C. §103(a) as unpatentable over Matsuda and Ruhl in view of Matsukawa et al. (U.S. Pat. No. 5,518,542, herein “Matsukawa”); Claims 10 and 14 were rejected under 35 U.S.C. §103(a) as unpatentable over Matsuda; and Claims 11, 13 and 16 were rejected under 35 U.S.C. §103(a) as unpatentable over Matsuda in view of Yoshihara et al. (U.S. Pat. No. 6,527,860, herein “Yoshihara”).

Before turning to the outstanding art rejections it is believed that a brief review of the features of the claimed invention would be helpful.

In this regard, the claimed invention recites a support plate for substantially horizontally supporting the substrate thereon, the support plate rotating the substrate in a substantially horizontal plane. Moreover, the claimed invention further includes at least one air flow control member provided on the support plate, the air flow control member being disposed adjacent to a periphery of the polygonal substrate supported on the support plate,

wherein the air flow control member is not provided near corner portions of the substrate supported on the support plate.

Addressing now the rejection of Claims 1-4, 9, 12 and 15 under 35 U.S.C. §102(b) as anticipated by Matsuda, Applicant respectfully traverse this assertion.

Claim 1 recites, in part,

a spin chuck including a support plate for substantially horizontally supporting the substrate thereon, the support plate rotating the substrate in a substantially horizontal plane;
a cup disposed around the substrate supported on the support plate;
an exhaust unit for evacuating an inside of the cup;
a supply nozzle for supplying a coating solution to a top surface of the substrate supported on the support plate; and
at least one air flow control member provided on the support plate, the air flow control member being disposed adjacent to a periphery of the polygonal substrate supported on the support plate, wherein the air flow control member is not provided near corner portions of the substrate supported on the support plate.

Matsuda describes an annular cover 33 that is provided along an upper peripheral edge of a cleaning vessel 26, which does not rotate. Further, Matsuda describes a rotary substrate holder 10.

However, Matsuda does not describe or suggest at least one air flow control member provided on the support plate, the air flow control member being disposed adjacent to a periphery of the polygonal substrate supported on the support plate, where the air flow control member is not provided near corner portions of the substrate supported on the support plate, as is recited in Claim 1.

In other words, the annular cover 33 of Matsuda is entirely different from the air flow control member recited in Claim 1. This is the case, at least, because the annular cover 33 of Matsuda, which is fixed on a non-rotating cover, is not provided on the rotary substrate holder 10. Further, Matsuda fails to describe or suggest an air flow member that is disposed adjacent to a periphery of the polygonal substrate supported on the support plate the air flow

control member not being provided near corner portions of the substrate supported on the support plate.

Accordingly, Applicants respectfully submit that Claim 1, and claims depending therefrom, patentably distinguishes over Matsuda.

Moreover, none of the further cited Kitano, Ruhl, Matsukawa and Yoshihara references cures the above noted deficiencies of Matsuda. Thus, Applicants respectfully submit that Claim 1, and claims depending therefrom, patentably distinguish over Matsuda, Kitano, Ruhl, Matsukawa and Yoshihara considered individually or in combination.

In addition, with regard to Claim 5, Applicants respectfully submit that this claim also patentably distinguishes over the combination of Matsuda and Kitano irrespective of this claim's dependence from Claim 1.

Specifically, Claim 5 recites a plurality of upright walls facing sides of the polygonal substrate, respectively, where the upright walls are disposed between the air flow control member and the support plate along the sides of the polygonal substrate supported on the support plate. Thus, the upright walls recited in Claim 5 are formed on a rotating support plate. The outstanding Action acknowledges that Matsuda does not describe or suggest the upright wall recited in Claim 5 but relies on Kitano as curing this deficiency.

Applicants, however, respectfully submit that Kitano discloses two mask members which are fixed to a rail 68 which does not rotate at all. Accordingly, the mask members of Kitano are entirely different from the upright walls recited in Claim 5.

Accordingly, Applicants respectfully submit that Claim 5 patentably distinguishes over the cited references.

In addition, with regard to Claims 6 and 8, Applicants respectfully submit that these claims also patentably distinguish over the combination of Matsuda and Ruhl irrespective of these claims' dependence from Claim 1.

Specifically, Claim 6 recites that the support plate has a generally polygonal shape corresponding to the substrate and is provided with cutout at corners thereof, the corner portions of the substrate outwardly protruding from the support plate through the cutout portions thereof when the substrate is supported on the support plate. Further, Claim 8 recites that a size of each of the cutout portions ranges from about 4 mm to 10 mm.

The outstanding Action acknowledges that the cutout corner features of Claims 6 and 8 are not described or suggested in Matsuda. Nevertheless, Ruhl is described as curing the deficiencies of Matsuda.

However, Applicants note that Ruhl fails to teach an element that supports a substrate, in other words, an element corresponding to the support plate of Claim 6. In contrast, in the disclosure of Ruhl, the cutout portion is not formed on the support plate but on a portion at a same level with the substrate. Further, the cutout portions of Ruhl are only slightly trimmed and not fully cut out. In addition, Ruhl fails to describe or suggest that the corner portions of the substrate protrude outward from the support plate through the cutout portions thereof when the substrate is supported on the support plate as recited in Claim 6. Further, nothing in Ruhl describes the size recited in Claim 8.

Accordingly, Applicants respectfully submit that Claims 6 and 8 patentably distinguish over the cited references.

In addition, with regard to Claim 7, Applicants respectfully submit that this claim also patentably distinguishes over the combination of Matsuda, Ruhl and Mutsukawa irrespective of this claim's dependence from Claim 1.

Specifically, Claim 7 recites a single body transfer arm having a number of support extrusions for supporting the corner portions of the substrates corresponding to the cutout portions of the support plate, respectively, where the transfer arm unloads the substrate from

the support plate by supporting the protruded corner portions of the substrate by the support extrusions.

The outstanding Action acknowledges on page 4 that Matsuda and Ruhl do not describe or suggest a transfer arm with support extrusions. Nevertheless, the outstanding Action cites Matsukawa as curing the deficiencies of Matsuda and Ruhl.

However, Matsukawa describes semicircular holding arms 111a and 111b configured in a two part form which are entirely different from the single body transfer arm recited in Claim 7. Further, Matsukawa fails to describe or suggest the support extrusions for supporting the corner portions of the substrates corresponding to the cutout portions of the support plate, respectively, recited in Claim 7.

Accordingly, Applicants respectfully submit that Claim 7 patentably distinguishes over the cited references.

In addition, with regard to Claims 10 and 14, Applicants respectfully submit that these claims also patentably distinguish over Matsuda irrespective of these claims' dependence from Claim 1.

Specifically, Claim 10 recites that each ventilation hole is provided at a location corresponding to a corner portion of the substrate supported on the support plate, as viewed from above. The outstanding Action acknowledges that Matsuda does not describe or suggest that the ventilation hole is on a corner of the substrate but that "it would have been within the purview of one skilled in the art to place the hold as desired with respect to the substrate in order to remove processing fluid(s) away from the substrate." Applicants respectfully traverse this assertion and submit that such an assertion is incorrect.

Specially, MPEP §2112 states that

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) ...*In re*

Oelrich, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted)

... "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)

Nothing in Matsuda, makes it clear that the missing feature regarding a location of the ventilation hole would be inherently present in this reference. Thus, in this regard, there is no question that Matsuda does not disclose or render obvious the feature of each ventilation hole being provided at a location corresponding to a corner portion of the substrate supported on the support plate, as viewed from above, as is recited in Claim 10. In addition, with respect to Claim 14, there is further provided a plurality of spacers for providing a gap between the support plate and the air flow control member, a feature which is not disclosed in Matsuda.

Accordingly, Applicants respectfully submit that Claims 10 and 14 patentably distinguish over the cited references.

In addition, with regard to Claims 11, 13 and 16, Applicants respectfully submit that these claims also patentably distinguish over Matsuda and Yoshihara irrespective of these claims' dependence from Claim 1.

Specifically, Claim 11 recites a ring plate for controlling the descending clean air flow towards the substrate supported on the support plate, the ring plate being disposed above the air flow control member and a Z-drive mechanism for adjusting a distance H1 between the ring plate and the air flow control member, the ring plate being vertically movably supported by the Z-drive mechanism. In addition, Claim 16 recites a ring plate for controlling the

descending clean air flow towards the substrate supported on the support plate, the ring plate being disposed above the air flow control member and a Z-drive mechanism for adjusting a distance H2 between the ring plate and the air flow regulation ring, the ring plate vertically moving supported by the Z-drive mechanism.

The outstanding Action acknowledges on page 5 that Matsuda does not describe or suggest a movably controlled ring plate. Nevertheless, the outstanding Action cited Yoshihara as curing the deficiencies of Matsuda.

Yoshihara, however, only discloses an air flow control plate 25 surrounding a wafer and fixed to control an air flow of the periphery of the wafer. Therefore, Yoshihara cannot be asserted as describing a ring plate supported by a Z-drive mechanism for elevating the ring plate recited in Claims 11 and 16. Moreover, Yoshihara does not cure the deficiencies of Matsuda with regard to Claim 13.

Accordingly, Applicants respectfully submit that Claims 11, 13 and 16 patentably distinguish over the cited references.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

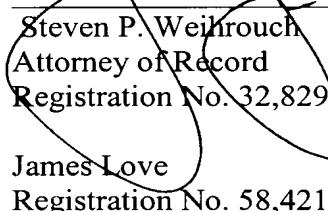
OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)


Steven P. Weihrouch
Attorney of Record
Registration No. 32,829


James Love
Registration No. 58,421